

Appl. No.: 10/709,678
Amdt. Dated: 12/14/2004
Reply to Office action of: 10/20/2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended) A multi-wire connector with interlocking device, said connector being of the type comprising:

a body (1) provided with a plurality of first connection terminals connected to respective conductive wires (W) projecting from a top portion, which body (1) is susceptible of fitting through the lower portion of;

a cavity (21) of a base piece (2) provided with other such second connection terminals provided for coupling with said first connection terminals when the said body (1) is in coupling position within said cavity (21);

a "U"-shaped support (10) being arranged projecting from said body (1), and a lever (3) comprising a bridge (30) and arms (31) jointed at their ends with regard to opposite sides of the said body (1) by means of projections (11), so that said lever (3) can rotate a certain angle, limited by stop configurations (12, 13), between an open position and a closed position, wherein said bridge (30) co-operates with said support (10) to confine said conductive wires (W), forming a bundle, locking configurations being arranged to immobilize the said lever (3) in said closed position; and

characterized in that means are provided for releasably interlocking the said body (1) in said coupling position in said cavity (21) of the said base piece (2), which means comprise at least a first interlocking configuration (33), integral to a portion (32) of the said lever (3), and at least a second interlocking configuration (22), integral to an inner side wall of the said cavity (21), in respective positions such that, when the said body (1) is introduced in the said cavity (21) with the said lever (3) in said open position, said first and second interlocking configurations (33 and 22) do not interfere with each other, whilst and when the said lever (3) is placed in the closed position, the said body (1) being in said coupling position, said first interlocking configuration (33) interferes with said second interlocking configuration (22), remaining both interlocked with each other, preventing extraction of the said body (1) from the said cavity (21).

Claim 2 (currently amended): A multi-wire connector with interlocking device, said connector being of the type comprising:

a body (1) provided with a plurality of first connection terminals connected to respective conductive wires (W) projecting from a top portion, which body (1) is susceptible of fitting through the lower portion of;

a cavity (21) of a base piece (2) provided with other such second connection terminals provided for coupling with said first connection terminals when said body (1) is in coupling position within said cavity (21);

Appl. No.: 10/709,678
Amdt. Dated: 12/14/2004
Reply to Office action of: 10/20/2004

a "U"-shaped support (10) being arranged projecting from said body (1), and a lever (3) comprising a bridge (30) and arms (31) jointed at their ends with regard to opposite sides of said body (1) by means of projections (11), so that said lever (3) can rotate a certain angle, limited by stop configurations (12, 13), between an open position and a closed position, wherein said bridge (30) co-operates with said support (10) to confine said conductive wires (W), forming a bundle, locking configurations being arranged to immobilize said lever (3) in said closed position;

characterized in that means are provided for releasably interlocking said body (1) in said coupling position in said cavity (21) of said base piece (2), which means comprise at least a first interlocking configuration (33), integral to a portion (32) of said lever (3), and at least a second interlocking configuration (22), integral to an inner side wall of said cavity (21), in respective positions such that, when said body (1) is introduced in said cavity (21) with said lever (3) in said open position, said first and second interlocking configurations (33 and 22) do not interfere with each other, and when said lever (3) is placed in the closed position, said body (1) being in said coupling position, said first interlocking configuration (33) interferes with said second interlocking configuration (22), remaining both interlocked with each other, preventing extraction of said body (1) from said cavity (21); and

A connector as claimed in Claim 1, further characterized in that the said lever (3) includes one of said portions (32) at the end of each arm (31), each portion (32) being arranged so that the said corresponding first interlocking configuration (33) remains close to a coupling hole for the corresponding joint snug (11), and in that the said cavity (21) includes two of said second interlocking configurations (22) arranged on opposite inner side walls thereof.

Claim 3 (currently amended): A connector as claimed in Claim 2, characterized in that said portions (32) with the said first interlocking configurations (33) are arranged at one side of said coupling hole angularly displaced from the rest of the said arm (31).

Claim 4 (currently amended): A connector as claimed in Claim 3, characterized in that the said body (1), said base piece (2), and the lever (3) are made of a slightly resilient material allowing mutual interlocking of the said first and second interlocking configurations (33 and 22) by the passage of at least part of the first ones over at least part of the second ones by means of a certain elastic deformation of said pieces.

Claim 5 (currently amended): A connector as claimed in Claim 4, characterized in that it comprises two pairs of said stop configurations (12, 13), which adopt the form of first and second protuberances (12, 13) arranged on said opposite sides of the said body (1) in such positions that they respectively interfere with first and second edges (34, 35) of opposite sides of the said arms (31) of the said lever (3) when the same is respectively in the open and closed positions.

Appl. No.: 10/709,678
Amdt. Dated: 12/14/2004
Reply to Office action of: 10/20/2004

Claim 6 (currently amended): A connector as claimed in Claim 5, characterized in that said locking configurations to immobilize the said lever (3) in the closed position comprise locking protuberances (15) arranged at the end of respective flexible tabs (16), extension of said opposite sides of the said body (1) and projecting over the top portion thereof, the said flexible tabs (16) of which are bent towards the inside when the said lever (3) is displaced from the open position to the closed position, due to the effect of forces exerted by the said arms (31) against tapered or rounded edges of said locking protuberances (15), allowing for the passage of the said lever (3) towards the closed position, and the said flexible tabs (16) of which recover resiliently when the said lever (3) overcomes the said locking protuberances (15), which occurs immediately after said second edges (35) of the said arms (31) have abutted against the second protuberances (13) and, by virtue of which, the said locking protuberances (15) interfere with said first edges (34) of the said arms (31), whereby the said lever (3) is immobilized in the closed position in which in addition said first and second interlocking configurations (33 and 22) are mutually interlocked.

Claim 7 (currently amended): A connector as claimed in Claim 6, characterized in that the said arms (31) of the said lever (3) include in addition respective windows (36) in which fit retention protuberances (14) located on the sides of the said body (1) to releasably immobilizes the said lever (3) in the open position when the said lever (3) is in said open position.